REMARKS

Claims 2, 4-15 and 17-27 are currently pending in this application. Claims 1 and 15 have been amended to include the limitations of claims 3 and 16 respectively and claims 1, 3 and 16 have been canceled. No new matter has been added to this application.

Rejection of Claims 2, 4-15 and 17-27 under 35 U.S.C. § 103 (a)

The Examiner has rejected claims 2, 4-15, and 17-27 under 35 U.S.C. § 103 (a) as being unpatentable over Ozeki in view of Fenster and further in view of U.S. Patent No. 5,838,815 (Gur). The Examiner correctly notes that neither Ozeki nor Fenster teach or disclose receiving indicia identifying at least one region of interest in a digital medical image or identifying three dimensional objects with in the least region of interest. The Examiner contends that Gur teaches obtaining a mammogram image and identifying suspicious masses in the breast region. The Examiner argues that it would be obvious to a person of ordinary skill in the art to apply the combined Ozeki's and Fenster's system to perform image processing on the objects disclosed in Gur by presenting the object in different viewing angles to the physician to determine if the object is abnormal. Applicants respectfully traverse the rejection.

The Examiner contends that Ozeki teaches performing linear interpolation on the tomographic slices. Applicants have amended independent claims 2 and 15 to recite "determining an extent, a centroid, and a local spinning axis of the given anatomical object by examining connected voxels within a predefined volume on adjacent tomographic slices". Applicants respectfully submit that interpolation of 3D data is not the same thing as connected components within a volume. Interpolation merely resamples the data to change the resolution to be higher or lower than the original format. Interpolation does not determine the extent of objects within the data. Interpolation takes an image volume that is *A* rows by *B* columns by *C* frames and resamples it to be *X* by *Y*

by Z. The output of an interpolation is an image with the same appearance as the original, although at higher or lower resolution. Interpolation is analogous to zoom. If the input image has voxels with values ranging from 0 to 100, the output image will also have values ranging from 0 to 100.

On the other hand, connected components determines for every voxel within the image volume, which voxels are part of the same object. Connected components also compute how many distinct objects are within the volume. The output of connected components computation is a labeling of each voxel according to the unique component to which it belongs. This is not the case in interpolation.

For example, consider an input image which contains background plus two foreground objects that are not touching. The output of a connected components computation would contain a zero in every background voxel, a 1 for every voxel corresponding to the first component, and a "2" for every voxel corresponding to the second component appears. If the two components were touching each other within the image, then an automatic analysis would perceive only 1 single component, and the output would consist only of 0s and 1s, even though the input image might have values ranging from 0 to 100.

Applicants submit that neither Ozeki, Fenster nor Gur, whether taken alone or in combination, teach the use of connected components of the present invention as recited in amended claims 2 and 15. Applicants further submit that Gur, like Ozeki and Fenster, does not teach or disclose displaying a plurality of views taken at computer selected angles of the rotation in sequence as a cine loop. Furthermore, the combination of Ozeki, Fenster and Gur do not each Applicants' invention. In addition, neither Gur nor Ozeki nor Fenster, whether taken alone or in combination, teach or disclose determining an extent, a centroid, and a local spinning axis of the given anatomical object by examining connected voxels within a predefined volume on adjacent tomographic slices as recited in amended independent claims 2 and 15. Claims 4-14 and 17-27 being dependent

upon independent claims 2 and 15 respectively are also not taught or disclosed by the combination of Ozeki, Fenster and Gur. Applicants request that the rejection of claims 2, 4-15 and 17-27 under 35 U.S.C. § 103 (a) be withdrawn.

Conclusion

Applicant respectfully submits that claims 2, 4-15 and 17-27, as amended, are in condition for allowance and request that a timely Notice of Allowance be issued in this case. The Examiner is invited to contact the undersigned should he have any questions in this matter.

Respectfully submitted,

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